

The Cedar Mesa Project: 1967-2009; “Prologue” to Matson, Lipe, and Haase, 1990

William D. Lipe and R.G. Matson

Introduction

The label “Cedar Mesa Project” (abbreviated “CMP”) is most appropriately used to refer to the field studies and related analyses co-directed by William D. Lipe and R.G. Matson between 1972 and 1975, with support from National Science Foundation grants GS 33413X and GS 43570 reported in detail in Matson et al. (1990). Elsewhere in this paper, we refer to this as the “CMP Proper.” However, the label “Cedar Mesa Project” has sometimes also been applied to the full list of field studies and related analyses directed by Lipe and/or Matson in the Cedar Mesa area, starting in the late 1960s and continuing to the present. Other studies have also been done in close collaboration with Matson and Lipe's work and still others have relied fully or in part on data from field projects directed by Lipe and/or Matson. Parallel information is found in various chapters in Matson and Kohler (2006). Below, we identify and briefly describe the array of studies that comprise or are related to the CMP as broadly defined, and provide a bibliography of reports and publications directly or indirectly related to the Cedar Mesa Project writ large at the end of this text.

This review thus provides a context and serves as Prologue for the long report produced in 1990 by R.G. Matson, William Lipe, and William Haase (Matson et al. 1990), and is intended to accompany it. Matson et al. (1990) is currently available in original, archival form at: <https://circle.ubc.ca/handle/2429/19586> on the Circle web site of the University of British Columbia, i.e. this web location. The “Revised” version is at: <https://circle.ubc.ca/handle/2429/47011> on the Circle web site at University of British Columbia. As the Matson, Lipe and Haase report is revised we also provide a “change list” at the end of the prologue. As of Oct 2014, the main texts of the two versions are identical with the differences only in figures, tables, appendices and in the Prologues.

Matson, Lipe and Haase (1990) focusses on the core of the CMP Proper—the 1972-1974 Quadrat Survey and the 1972-1975 Drainage Canyon Inventory and Collecting study. The Quadrat Survey consisted of a stratified sample of 76 quadrats, each 400 m on a side. These quadrats were selected at random from five watersheds (drainage units): Upper Grand Gulch (UGG), Bullet (B), North Road (NR), Hardscrabble (HS), and West Johns (WJ). The second aspect reported in the body of the monograph is the 1972-1975 Drainage Canyon Inventory and Collecting study. This involved inventorying sites in the entrenched portions of

these same five drainages, and then doing intensive recording and artifact collecting at a stratified sample of the sites found during initial inventory. In addition, the monograph (Matson et al. 1990) refers in some places to partial results from several sub-projects, particularly the 1972-1973 Site Testing program and the 1974-1975 Tree-Ring and Architecture Survey and Collecting program as well as the “Archaeological sampling Survey of Proposed Additions to the Existing Grand Gulch Primitive Area” carried out in 1976 (Lipe et al. 1977) and hereafter referred to as the “Additions Survey”.

Initial Cedar Mesa Field Research, 1967-1971

1967 Reconnaissance Survey

This brief reconnaissance was conducted by William Lipe during the summer of 1967. At that time, he was a faculty member in the Department of Anthropology at the State University of New York at Binghamton. The reconnaissance was funded by a small faculty research grant. Lipe visited selected areas of southeastern Utah, including Cedar Mesa, parts of the Dark Canyon Plateau, and Fable Valley north of Elk Ridge.

In the Cedar Mesa area, Lipe was interested in locating sites previously excavated by Richard Wetherill in Grand Gulch the 1890s, as well as in finding mesa-top Basketmaker II sites. As part of his dissertation, Lipe (1966, 1970) had synthesized data on the Basketmaker II occupation of the Red Rock Plateau, located west of Cedar Mesa. The Basketmaker II settlement system he proposed included open pithouse habitation sites and camp sites as well as use of natural shelters as camps for storage and burial of the dead. Because Wetherill had found abundant evidence of Basketmaker II occupation in natural shelters in Grand Gulch and Butler Wash (Blackburn and Williamson 1997), Lipe expected to find pithouses and camp sites on the adjacent mesa top. His reconnaissance demonstrated that Basketmaker II sites, including probable habitation sites with pithouses, were abundant on Cedar Mesa.

The sites that were visited were recorded in minimal fashion, and no collections were made. The 1967 visit to Cedar Mesa and its entrenched canyons provided information Lipe used to plan the survey and excavations he directed on Cedar Mesa in 1969 and 1970.

1969-1970 Survey

The objectives of the 1969 and 1970 survey and related excavations (Lipe 1978) were 1) to document the Basketmaker II occupation of the Cedar Mesa-Grand Gulch region, with emphasis on the open mesa-top sites of this period; 2) to collect data on post-Basketmaker II periods so Anasazi settlement patterns in the region could be described; and 3) to locate some of the sites in Grand Gulch at which Richard Wetherill

had encountered Basketmaker II and later materials during two expeditions in the 1890s. This last goal was intended to provide at least general provenance data for the Wetherill collections from southeastern Utah that are housed at the American Museum of Natural History in New York (Blackburn and Williamson 1997).

The survey had two parts. The first was an intensive block survey of an area bounded by Sheiks Canyon, Coyote Canyon, the rim of Grand Gulch, and the east-west trending portion of the Sheiks Flats road that crosses from the Coyote drainage over to the Sheiks drainage. A few sites were also recorded between Sheiks and Bullet Canyons, south of the main block survey area. Specially-designed brief survey forms were filled out for each site, and surface collections were made from most sites. At most sites, at least one "ISP" (intensive survey plot) was judgmentally selected, and all surface artifacts observed in the plot were picked up. The standard ISP was a circular area defined by a "dog-leash" radius of 10 feet. At some sites, all surface artifacts were instead (or also) collected from selected features or artifact concentrations.

Second was a non-intensive survey of portions of Grand Gulch--primarily between the mouth of Kane Gulch and a point not far below the mouth of Sheiks Canyon, and in a segment of the canyon extending a short distance both upstream and downstream from the mouth of Collins Spring Canyon. The Grand Gulch portion of the survey was guided by Richard Wetherill's notes from 1896-97 and Nels Nelson's survey notes from the 1920s. An attempt was made—with some success—to re-locate these sites, especially the ones where Wetherill had excavated. Small "grab sample" collections were made from several of the Grand Gulch sites.

When this survey was conducted, Lipe was a faculty member at SUNY-Binghamton, and was assisted by graduate and undergraduate students, most of whom were recruited from that university. The survey and the related excavations described below were financed by grants from the National Geographic Society and from the State University of New York. Collections and records from the survey are curated at the Museum of Anthropology, Washington State University (WSU).

The Grand Gulch area, rather than Cedar Mesa, was considered the geographic focus of the 1969 and 1970 fieldwork, and this is reflected in the field numbering system for sites, as described below. In fact, the majority of the sites recorded on the survey were located on the mesa top, rather than in the entrenched canyons, and as noted, one of the objectives was to locate Basketmaker II sites on the mesa. Sites recorded on this survey were assigned field numbers comprised of three variables. All were labeled "GG" for the Grand Gulch area; next was the year they were recorded (either 69 or 70 for 1969 and 1970, respectively); and finally, a sequential site number. Thus, the site number "GG69-20" refers to the 20th site recorded in the Grand Gulch-Cedar Mesa area in 1969. In 1970, the site number sequence was picked up where it had ended in 1969, so that "GG70" sites always have higher numbers than the "GG69" sites.

1969-70 Excavations

These excavations were done concurrently with the survey described above (Lipe 1978). Excavations were focused on mesa top sites, and included work at several late Basketmaker II habitation sites located in the primary block survey area—field numbers GG69-1, GG69-18, and GG69-20 (Lipe 1978; Pollock 2001; also see Matson 1991; Berry 1982). Test excavations were also carried out in the block survey area at site GG69-15, which had a probable pottery-firing kiln dating to the late Pueblo II or early Pueblo III period, as well as a Basketmaker II hearth and artifact scatter. Two additional sites were tested in the area between Sheiks and Bullet canyons—a Basketmaker II pithouse site (GG70-193; Pollock 2001) and a Basketmaker III site having several occupation areas (GG70-187) but no identifiable pithouse (Barrentine n.d.).

Collections and records from these excavations are curated at the Museum of Anthropology at WSU.

1971 Todie-Long Survey

This was a small pilot survey project that R.G. Matson and W.D. Lipe carried out in a portion of the upper drainages of Todie and Long Canyons on Cedar Mesa. At the time, Lipe was on the faculty at SUNY-Binghamton, and Matson was on the faculty of Northern Arizona University in Flagstaff. Fieldwork was funded personally by Lipe and Matson. The purpose of the 1971 fieldwork was to develop methods for designing and carrying out a larger project that would use statistical sampling methods to characterize Cedar Mesa settlement patterns through time (Lipe and Matson 1971a). The Todie-Long survey also provided background useful in preparing an NSF proposal that was submitted in late 1971 (Lipe and Matson 1971b) and funded in 1972.

During the 1971 fieldwork several sites were recorded and a small amount of material was collected. These materials are curated at the Museum of Anthropology at WSU.

The Cedar Mesa Project Proper, 1972-1975

1972-74 Quadrat Survey

An NSF grant for the CMP proper was awarded to co-principal investigators W.D. Lipe and R.G. Matson in the spring of 1972, and CMP fieldwork began in June of that year (Matson and Lipe 1975; Matson

2006). Lipe became Assistant Director of the Museum of Northern Arizona (MNA) in Flagstaff in June, 1972, and Matson became an Assistant Professor of Anthropology at the University of British Columbia (UBC) in July, 1972. The grant was renewed by NSF in 1974 (Lipe and Matson 1974).

The main research goals of the Cedar Mesa Project proper were 1) to reconstruct the adaptive strategies of the prehistoric cultures of the region, 2) to identify the environmental limits of these adaptations, and 3) to attempt to account for stability and change in the cultural adaptive strategies (Lipe and Matson 1971; Matson and Lipe 1975).

The quadrat survey was the core investigation of the CMP proper. The conceptual basis of the work and the sampling methodology are described in Lipe and Matson (1971b, 1974), Matson and Lipe (1975, 1978) and Chapters II and III of Matson et al. (1990). The survey was based on a stratified random sampling design. The approximately 800 square km Cedar Mesa study area was partitioned into 20 watershed or drainage units. These were divided into north and south strata. Three northern drainages (Upper Grand Gulch, Bullet, and North Road) were selected from the northern stratum and two (West Johns and Hardscrabble) were selected from the south. Each drainage unit was considered to be a cluster of quadrats 400m on a side, and a random 7% sample of quadrats was selected from each of the five drainages, for a total of 76 quadrats.

As described in more detail in Chapters II and III of Matson et al. (1990) each quadrat was surveyed intensively by crews of 3 to 5 persons who lined up abreast of one another with even spacing of approximately 10 meters between surveyors. The team would then walk adjacent transects back and forth until the quadrat had been fully covered. When surface artifacts and features were found, they were marked with pin flags; if a concentration of cultural material was encountered, it was designated as a site and was mapped in some detail. Artifacts were located on sketch maps individually or in small clusters between 1 and 2 square meters; each artifact or cluster was termed a "location" for purposes of provenience control and mapping.

Ordinarily, all artifacts observed at a site were mapped and collected. For large sites, large grid units were laid out to aid in mapping, and artifacts were collected from numbered and mapped locations within these grid units. Features (e.g., dense concentrations of artifacts, areas with evidence of hearths, houses, or other structures, etc.) were designated when encountered. At a small number of sites where very dense middens occurred, the middens were gridded and artifacts were collected from only a sample of these grid units. Isolated artifacts were also collected during the quadrat survey. They were designated as "offsite locations" and their coordinates within the quadrat were recorded. Hence, for the surveyed quadrats, every effort was made to collect all visible surface artifacts, except for the very few cases in which dense middens were only partially collected.

Although vegetation cover was sparse in most quadrats, there undoubtedly were some situations where plant growth obscured surface artifacts, which therefore were not collected. Accumulations of duff under trees also obscured some portions of the surface and hence the visibility of some artifacts, although one could question whether such artifacts were in fact "on the surface." Altogether, the quadrat survey methods resulted in very thorough and systematic collection of visible artifacts and of surficial data on features.

Within a quadrat cluster, (e.g., the Bullet Canyon drainage), sites were numbered consecutively from 1 to *n*. Hence, the number B 10-6 refers to Site 6 in Quadrat 10 in the Bullet drainage. WJ 9-5 refers to Site 5 in Quadrat 9 in the West Johns unit. When a site was on the edge of a quadrat, so that part of the site was within the quadrat and part was outside, the part outside was given an "A" designation. For example, if B 10-6 was on the edge of a quadrat, the portion inside the quadrat would be designated as B 10-6 and the part outside as B 10-6A. This was in the anticipation that much of our data analysis would be focused on assemblages from quadrats rather than from sites, so that for certain comparisons, we would want to use data only from within quadrat boundaries. Hence, artifacts and features would need to be designated as to whether they were inside or outside the quadrat.

A number of studies have relied on collections and/or data from the 1972-74 Quadrat Survey, either fully or in part. These include several MA theses (Camilli 1975; Dohm 1981; Haase 1983) and dissertations (Camilli 1983; Dohm 1988; Glowacki 2006; Mills 1989; G. West 1977). Articles, books, and reports include Matson (1991); Matson and Lipe (1975, 1978); Matson, Lipe, and Haase (1988 and this monograph); and Nelson (1994). An article by Hard et al. (1996) relied in part on data about Basketmaker II period mano size furnished by R.G. Matson and W.D. Lipe; most of these measurements were from manos collected as part of the Quadrat Survey.

As noted above, the accompanying monograph by Matson et al. (1990) reports the results of the 1972-1974 Quadrat Survey in depth. The collections and records from this subproject are curated at The Department of Anthropology at WSU, although a few items and assemblages are on loan to Matson at UBC for further study.

1972-1975 Drainage Canyon Inventory and Collecting

During the CMP, an inventory of sites located in entrenched canyons was done for each of the five drainage units described above and was directed mainly by R.G. Matson. This was a complement to the random quadrat survey. Because the canyons occupy only a small percentage of each drainage by area, it was anticipated that it would be very difficult to characterize the occupation of the canyons on the basis on quadrats randomly selected for the drainage unit as a whole. On the other hand, the canyons clearly

provided an important environment for settlement, and sites there often had well preserved architecture. Hence, we decided to apply a different sampling strategy to the entrenched canyons in order to be able to characterize their occupation more precisely as described in Chapter III of Matson et al. 1990. This project, although begun under the 1972 NSF grant, was largely funded and carried out during the fieldwork supported by the second NSF grant (Lipe and Matson 1974).

Instead of being based on randomly selected quadrats, the canyon survey employed an actual inventory of sites located in the entrenched canyon portion of each of the five drainage units. Quasi-quadrats were created by overlaying adjacent 400 m squares on an aerial photo mosaic of each entrenched canyon system. These quasi-quadrats were numbered in sequence and designated as "C-quadrats". Hence, Bullet Canyon would have C-quadrats numbering from 1 to n . Therefore, we have B 10 (Bullet Quadrat 10) from the random quadrat survey and B C10 (Bullet Canyon quadrat 10) from the canyon inventory. Sites were numbered from 1 to n within each canyon quadrat. Thus, WJ C5-3 is the third site within Canyon Quadrat 5 in the West Johns drainage unit or cluster. In a few cases, the randomly selected quadrats from the previously-described 1972-1974 survey overlapped with canyon quadrats; in those cases the random quadrat system took precedence in site recording and collecting.

The canyon inventories were accomplished by a crew of 3 to 5 people, who systematically walked the canyon floor and the ledges of the canyon walls. The ruggedness of the terrain made it impossible for the crew to maintain a systematic search pattern with survey team members spaced at regular intervals, as had been done in the quadrat survey. Although the coverage was thorough, undoubtedly a number of small or inaccessible sites were missed.

Once the canyon inventories had been completed, a stratified random sample of canyon sites was selected for intensive recording and surface collecting. The sample was stratified by drainage unit, chronological period, and site type, as described in Chapter III in Matson et al. (1990) and in Morton (2002). Crews returned to these selected sites to do the mapping and collecting, using methods as similar as possible to those applied in the basic Quadrat Survey.

The records and collections from this sub-project are curated at the Museum of Anthropology at Washington State University.

1972-1974 Testing Program

Some of the sites located in the quadrat survey were judgmentally selected for test excavations. This work was done concurrently with the Quadrat Survey and the Canyon Inventory and Collecting and was also funded by the same NSF grants. Most of the test excavations were directed by Joseph Winter under the

general supervision of Lipe. Exceptions to Winter's direction of the quadrat site testing included some of the testing at UGG 4-3 by Lipe and B 10-7 which was excavated by Matson. Priority for testing was given to sites that had the possibility of yielding datable tree-ring samples, and/or samples useful in environmental or economic reconstructions (e.g., pollen, flotation, faunal remains). In some cases, priority was also given to sites or portions of sites where testing could link surface characteristics to particular types of architecture or features, or where middens could provide large samples of sherds for seriation studies. The results of the Testing Program are referred to in the accompanying monograph (Matson et al. 1990) but are not fully reported there, although full tabulations for the lithic material—both ground and flaked stone are included. In all, a total of ten sites found during the quadrat survey were tested.

In the 1972-1974 Testing Program, the excavated portion of a tested Quadrat Survey site was designated by an "X" after the quadrat number. Thus the designation Bu 10X-6 would indicate the excavated portion of Site 6 in Quadrat 10 in the Bullet cluster. This designation appears in the artifact catalog for the site, to distinguish items collected in the Testing Program from those collected as part of the Quadrat Survey.

Brand's (1994, 1995a) analysis of faunal remains relied largely on specimens collected as part of the 1972-1974 testing program. In addition, Matson and Chisholm (1991) and Chisholm and Matson (1994) report on stable carbon isotope values of human and non-human animal bones from Cedar Mesa; these studies were based on specimens from the 1972-1974 Testing Program as well as from surface collections made in the other surface survey sub-projects.

One site not encountered in the quadrat survey was also tested, under the direction of R.G. Matson. This was the Turkey Pen site, located in a large natural shelter in Grand Gulch (Cedar Mesa Project field numbers GG69-34 and GG 3.1; the Utah state number is 42SA3714). During the 1972 field season, Matson's crew excavated and completely removed a 140 cm deep by 50 cm square column of midden deposit from this site, as well as screening two 140 cm deep by 50 cm neighboring columns. All of this deposit appears to have accumulated during Basketmaker II times (Lipe 1979; Matson 1991). Human coprolites, pollen and botanical samples from this column have yielded significant data about Basketmaker II subsistence (Aasen 1984; Arakawa et al. 2001; Chisholm and Matson 1994; Cordas 2000; Lepofsky 1986; Matson 1991; Matson and Chisholm 1991, 2007; Radomsky 2000; West 1977). The Turkey Pen site was very seriously vandalized twice in the late 1970s (Keller et al. 1974; Lipe 1979; Powers 1984), with much churning of the midden deposits, making the column sample excavated by Matson an even more valuable record of this important site.

1974-75 Tree-Ring and Architecture Survey and Collecting

In the second NSF grant proposal (Lipe and Matson 1974) a detailed research program on the well preserved cliff-dwellings in several Cedar Mesa canyons was presented. Upon receiving this funding, several canyon segments outside the five primary drainages were inventoried, and several sites were judgmentally selected for very detailed architectural mapping and collection of beam cores for tree-ring dating. The fieldwork was carried out in the summer and fall of 1974, and in the summer of 1975, under the direction of Lipe.

Personnel from the Laboratory of Tree-Ring Research at the University of Arizona collaborated with this part of the fieldwork. Jeffery Dean helped design the recording protocols and spent time in the field at the outset of the project. Denny Bowden, also of the Tree-Ring Lab, assisted in collecting cores and recording their proveniences.

Most of the sites investigated were in canyons that were not included in the Drainage Canyon Inventory and Collecting investigation. In these cases, a segment of canyon was selected on a judgmental basis because it contained several well-preserved cliff dwellings. These canyon segments were inventoried with the same methods used for the canyons of the five primary drainages. The sites that were selected for detailed recording and beam coring were those judged to have the greatest promise of yielding tree-ring dates from in situ beams, as well as data on building sequences and the functions of structures. There was some overlap between the Drainage Canyon Inventory and Collection investigation, with a single site, the “Junction site” at the Junction of Grand Gulch and Lower Kane Gulch being collected under both investigations.

Designations for the additional areas inventoried as part of the Tree-Ring and Architecture Study were as follows:

Grand Gulch (GG) (from the mouth of Kane Gulch downstream to Split Level Ruin)

Lower Kane Gulch (K)

Lower Todie Canyon (T)

Upper McLoyds Canyon (M)

In the first three, the recording system was identical to that used for the Canyon Inventory and Collecting sub-project: quasi-quadrats were numbered for the portion of the canyon being inventoried, and site numbers were assigned within each quadrat. Hence, GG C10-2 refers to Site 2 within Canyon Quadrat 10 in the portion of Grand Gulch that was surveyed.

McLoyds Canyon also had canyon quadrats assigned, but in this case, sites were just numbered in sequence for the short stretch of the canyon that was studied. Hence, M-1, M-2, and M-3 (the Moon House complex)

represent the three sites that were intensively studied in McLoyds canyon. Canyon quadrat numbers do not figure into the field numbers for any of the sites identified in McLoyds Canyon.

Much of the dating information from this sub-project was used in the accompanying monograph (Matson et al. 1990) and in formation of the Cedar Mesa phase sequence (Haase 1983; Matson et al. 1988). However, the architectural information is neither described nor analyzed in these sources. The architectural details and associated tree-ring dates are, however, thoroughly reported in two MA theses (Bloomer 1988 and Bedell 2000). The lithics and ground stone collections are fully described in Matson et al. 1990, the ceramic collections are not. Some ceramic collections were fully classified and some of these were used in the seriation described in Chapter VII of Matson et al. 1990, as indicated above. Other theses and dissertations that use data from the 1974-1975 Tree-Ring and Architecture Inventory and Collecting sub-project include Ahlstrom (1985); Glowacki (2006); and Schlanger (1980). Toor's (1984) class paper provides a limited analysis of vessel forms from sherds collected at the Moon House complex, plus sherds from testing at site BU 3X 10A. Ortman (2000) analyzed sherds from the Moon House complex, as did Glowacki (2006), who also studied sherds from several sites collected as part of the Quadrat Survey.

Cores and other wood samples from the Tree-Ring and Architecture study are curated at the Laboratory of Tree-Ring Research at the University of Arizona in Tucson. The other archaeological collections and records from this subproject are curated at the Museum of Anthropology, Washington State University.

1970-1975 Agricultural Experiments

In 1970 with the advice from Willie Coin, a Hopi person familiar with traditional farming methods, Lipe began some casual experiments on flood water agriculture focusing on trying to grow maize in the sagebrush flats on Cedar Mesa. In the Cedar Mesa Project proper, these become more systematic, and were carried out by Prof. Victor Fisher of Towson State University with the advice of Lipe. These included some hand-watering experiments and concluded in a slash and burn plot at the head of Todie Wash in dense Pinyon-Juniper forest. The relative lack of success in the dry-farm and floodwater plots in the sagebrush flats and the success of the slash and burn plot radically changed Lipe and Matson's understanding of what was going on, and provided an convincing explanation of the patterning of much of the archaeological remains as described in Matson et al. 1988; 1990.

In addition a dry-farm field was planted next to the Lowry Ruin in Colorado. This field also did well, although some students that were working on a stabilization project picked some of the ears, limiting the usefulness.

Although the results of these experiments have yet to be written up, Prof. Fisher has recently informed us that he has relocated his notes of the 1972-75 experiments, and the harvested collections. However, the corn from the last season of experimental farming, including from the slash-and-burn field, suffered major damage because it evidently had been insufficiently dried before being packaged for shipment to Fisher. Whether usable data can every be assembled from this study remains an open question.

1973-1974 Lithic Source Survey

As part of the CMP Proper, an attempt was made to determine which lithic raw materials were locally available on Cedar Mesa, and which had been imported from adjacent areas such as Elk Ridge or the San Juan Valley. As his time permitted, Donald Keller (a crew chief on the several CMP survey projects) visited a number of potential lithic source areas and collected non-archaeological samples of raw material (Keller 1979; 1982). The source material samples are curated at the Museum of Anthropology at Washington State University although currently they are at UBC.

Associated Field Projects Supported by the CMP Proper

1972 Malacology Study

Phil Salkin, a graduate student at the University of Wisconsin, Madison (and a former crew member on the 1972-3 Cedar Mesa Survey and Excavation) collected samples of sediment containing mollusc shells from an 5.4 m deep column of alluvial sediments exposed in Kane Gulch. The sampling location is near where Kane Gulch is crossed by Utah State Highway 95, and is about 4 miles upstream from the junction of Kane Gulch with Grand Gulch. Salkin also collected molluscan fauna from several other alluvial exposures, but the Kane Gulch samples became the basis for his Master's thesis (Salkin 1974) and for a brief article (Salkin 1975).

1972-1976 Palynology Study

James West, a graduate student at the University of California at Davis, made several visits to Cedar Mesa between 1972 and 1976 to collect sediment samples from modern, alluvial, and archaeological contexts for the purpose of obtaining pollen for his dissertation research (West 1977). The archaeological sampling was done in conjunction with the 1972-1973 Testing Program. Most of the archaeological samples analyzed by West were collected by the excavators on this sub-project. West's fieldwork and analyses were partially supported by funds from the Cedar Mesa Project NSF grants.

1973 Horse Flats Project

In 1973, Danny Brooks, an M.A. student from the Department of Anthropology at Northern Arizona University, was associated with the CMP. His graduate committee chair at NAU initially was R.G. Matson, but Prof. John Wood presided over completion of the thesis after Matson moved to the University of British Columbia. In the field, Brooks worked under the direction of CMP co-P.I.s Matson and Lipe. Logistic support was also provided by the CMP.

Brooks did a small survey and testing project focused on a system of check dams associated with a cluster of Pueblo III sites on Horse Flats, an area on Elk Ridge north of Cedar Mesa. Brooks tested the sediments behind several check dams, and may have made some surface collections from habitation sites in the vicinity. The field research is reported in his M.A. thesis (Brooks 1974). This research complemented CMP objectives by providing information about agricultural adaptations in an upland area north of Cedar Mesa about which little had previously been known.

The original field notes, artifact collections, other samples, and data analysis records from this project are at the Museum of Anthropology, WSU.

1973 Alluvium Mapping

In 1973, Larry Agenbroad (then a professor at Chadron State College in Nebraska) and several of his students mapped alluvial deposits in a portion of Grand Gulch. On the basis of this work, Agenbroad (1975) proposed a chronology of alluvial deposition, downcutting, and terrace formation. The fieldwork was supported with funds from the Cedar Mesa Project NSF grant, and Agenbroad's field crew used the CMP field camp at Todie Spring as their base of operations. Lipe and Matson (1975) used Agenbroad's data in a study that examined the relationships between area of alluvium and number and size of Pueblo II and III sites in a 17.6 mile stretch of Grand Gulch.

1975 Owl Creek Survey

Charlotte Benson, a Ph.D. candidate at the University of Washington, was partially supported by the CMP in 1975 to conduct a block survey of a portion of the Owl Creek drainage in the northeastern part of the CMP study area. The chair of her Ph.D. committee was Professor Robert Dunnell of the U. of W., but W.D. Lipe provided logistical support and advice in the field. Benson's Owl Creek survey articulated with the CMP because it was designed to provide data on a large continuous block located primarily on the mesa top, whereas the CMP Quadrat Survey was based on 400 m square quadrats randomly located within particular portions of the mesa. The Owl Creek survey thus provided a basis for characterizing multi-site

dispersed communities, most if not all of which were spatially too large to fall within a single 400 m square quadrat. A dissertation (Benson 1984) and an article (Benson 1985) resulted from this field project.

The collections and copies of the field notes from the Owl Creek Survey are curated at the Museum of Anthropology, Washington State University.

Other Cedar Mesa Field Projects

1974 BLM Grand Gulch Cleanup Survey

In early 1974, the Museum of Northern Arizona received a contract from the Bureau of Land Management to map and make surface collections at designated rockshelter sites in upper Grand Gulch and lower Bullet Canyon. Donald Keller was the field director, and William D. Lipe was the Principal Investigator. The fieldwork was done in the late spring and early summer of 1974. Cedar Mesa Project camping, transportation, and recording equipment (which was the property of the Museum of Northern Arizona) were used. The purpose of the project was to collect human remains, as well as scraps of basketry, other organic remains, and other highly visible artifacts, from the surface of the designated sites. Many of these items probably had been unearthed in the wave of digging by McLoyd, Graham, Richard Wetherill, and others in the 1890s (Blackburn and Williamson 1997).

Bureau of Land Management officials thought that these materials should be collected because their presence on the surfaces of these sites would serve as an incentive for looters to do additional unauthorized digging at these sites. There was also a concern to remove the human remains from public view out of respect for the individuals and any present-day descendants. Additional goals of the project were to map and document looters' pits and to record site condition as a baseline for future site condition monitoring in the future. The project goals were met, as documented in a report by Keller et al. (1974). This study also contributed additional information about the occupation of Cedar Mesa's entrenched canyon environments and hence complemented information obtained in the Canyon Inventory and Collecting and the Tree-ring and Architecture sub-projects. Several of the sites documented in the Grand Gulch Cleanup Survey were revisited later in 1974 and were mapped in greater detail as part of the Tree-Ring and Architecture study.

All collections and original records from the Grand Gulch Cleanup Survey were deposited at the Museum of Northern Arizona. None were transferred to Washington State University when Lipe resigned from the MNA and accepted a job at WSU in 1976.

1976 Archaeological Sampling Survey of Proposed Additions to the Existing Grand Gulch Primitive Area. ("Additions Survey")

In 1976, the Bureau of Land Management awarded a contract to MNA to assess the archaeological resources of areas being considered for addition to the Grand Gulch Primitive Area. William Lipe of the MNA was the Principal Investigator, and directed the fieldwork in the summer of 1976. Richard Ahlstrom was the field director, and Matson participated in a significant part of the fieldwork.

Some of the proposed additions to the Grand Gulch Primitive Area had been sampled by the surveys of the CMP Proper, and information from these surveys was provided to BLM as part of the 1976 contract (Lipe et al. 1977). In addition, sampling surveys were conducted in two large areas not previously investigated by the CMP. These two areas were approximately congruent with 1) the drainages of Pine and Dripping Canyons, western tributaries of Grand Gulch, and 2) the drainages of Slickhorn and Point Lookout Canyons, which are tributaries of the San Juan River.

The research design for this project was modeled in general after the CMP Quadrat and Drainage Canyon Inventory sub-projects. However, site recording was at a lower level of detail and no artifact collections were made. For each of the two areas newly surveyed in 1976, a sample of randomly located 400 m square quadrats was systematically searched, using parallel transects. Data from these quadrat surveys was used to estimate the total population of sites of various types and periods in the two drainage units. In addition, the entrenched canyon portions of both areas were surveyed, and all readily-observable sites were recorded. This was done in anticipation that recreational use of the proposed Primitive Area additions would be most intensive in the canyons, and that BLM needed baseline data regarding sites present in those canyon systems. There was no follow-up phase of detailed mapping at selected sites in these canyons, as had been done in the Drainage Canyon Inventory and Collecting sub-project of the CMP proper.

The level of intensity of field coverage in 1976 was similar to the CMP prototype for the random quadrats, but somewhat less intensive for the canyon inventories. The level of documentation of sites, features, and artifacts was much less intensive. No artifact collections were made, and sites were recorded on a two-page form with sketch maps. The field numbering system for random and canyon quadrats, and for sites and off-site locations, was the same as had been used for the CMP proper. Most of the information gained by this sub-project on the distribution and frequencies of sites by time period and functional site type has been incorporated in the accompanying monograph (Matson et al. 1990).

The 1976 inventory was documented in a report to the Bureau of Land Management (Lipe et al. 1977) and Utah State site forms were filled out and submitted to the BLM for all sites that had been encountered.

Copies of site forms are housed at the Department of Anthropology at WSU, but the original field records from this project remained at the Museum of Northern Arizona, and the originals of the site forms were submitted to the BLM.

1978 Comb Wash Reconnaissance

This small reconnaissance was carried out in the spring of 1978 by William Lipe and several graduate students from Washington State University. It was funded by a small faculty research grant from WSU. The project was designed to assess the possibilities for a larger future survey and excavation project based in Comb Wash. Several east-west transects of the valley of Comb Wash were surveyed and several sites were recorded. No artifact collections were made.

The anticipated study of the archaeology of Comb Wash would have complemented the CMP by providing information about settlement patterns in a large valley bordering the eastern edge of Cedar Mesa. Shortly after the reconnaissance was completed, however, Lipe became a co-Principal Investigator of the Dolores Archaeological Project in Colorado, and this drew his attention away from the possibilities of further research in the Cedar Mesa-Comb Wash area.

The original field notes and maps from the Comb Wash Reconnaissance are at the Museum of Anthropology, Washington State University. Utah state site forms for the sites encountered were filled out and submitted to the Bureau of Land Management.

1984 Excavations

In 1984, Karen Dohm conducted excavations at WJ 12-6 (42SA 4248), a Basketmaker II and III period site that had been recorded and tested as part of the CMP Testing Program in 1972-73 (Dohm 1985). The purpose of the work was to obtain additional data for her Ph.D. dissertation at WSU (Dohm 1988). Her dissertation supervisor was William Lipe, and R.G. Matson was a member of her graduate committee. Dohm was in charge of the fieldwork, under the general supervision of Lipe, who visited the field location several times. The project was authorized under an Archaeological Resource Protection Act permit No. 84-UT-011 to WSU and was funded by grants from Sigma Xi and from WSU.

This field research contributed importantly to Dohm's dissertation, which also employed survey data from the CMP Quadrat Surveys (Dohm 1988). The results of Dohm's work are not incorporated in the accompanying monograph (Matson et al. 1990), but they did lead to further field investigations directed by Matson and Dohm in 1991 and 1992 (Matson 1994, 1995a; Dohm 1994, 1995). Records and collections from her 1984 excavations are curated at the Museum of Anthropology, WSU.

1991-1992 Excavations and Survey

This project was directed by R.G. Matson under provisions of an Archaeological Resource Protection Act Permit (91UT62718) issued to him and was funded by the Social Sciences and Humanities Research Council of Canada. Karen Dohm was the Research Collaborator on the grant and directed one of the two main aspects of the project. Fieldwork was conducted in July and August of 1991 and for part of July 1992. Matson directed limited excavations at several Basketmaker II sites in the Hardscrabble Drainage that had initially been identified by the CMP Quadrat Survey, but that seemed anomalous with regard to their lack of association with soils suitable for dry-farming. The goal was to determine whether these sites were "related to the earlier White Dog Phase Basketmaker II, the later Grand Gulch Phase Basketmaker II occupation, or to a previously unrecognized Late Archaic occupation" (Matson and Brand 1995:2). In total four Basketmaker habitations were tested, as well as four non-habitation sites. In addition, Matson tested site NR C9-5, "The Rock Island Site", a defensively-located site, to obtain dates and determine if it could be assigned to one of the Basketmaker II phases noted above.

The results indicated that the Rock Island Site dated to the mesa top Grand Gulch Basketmaker II phase. The Basketmaker II sites investigated in the Hardscrabble area also included material dating to the Grand Gulch phase as well and some to the late White Dog phase. No discernable Archaic remains were encountered.

As her part of the 1991-1992 fieldwork, Karen Dohm (Dohm 1994) conducted a non-collection block survey of an area in the North Road Drainage "to establish the extent of the Grand Gulch Phase habitation site aggregations and to determine if dispersed Basketmaker II villages existed" (Matson and Brand 1995:2). This field work resulted in a fairly definite conclusion that dispersed "hamlets" comprised the main habitation settlement pattern (Dohm 1994).

The 1991-1992 fieldwork has resulted in several reports and publications (Brand 1995a, 1995b; Matson 1994, 1995a, 1995b; 1995; Matson and Brand 1995; Matson and Brand (editors) 1995; Nelson 1994) as well as an edited volume on Basketmaker II (Matson and Dohm 1994a). Collections and records from this project are curated at the Laboratory of Archaeology, University of British Columbia, Vancouver.

Additional Work Related to the Cedar Mesa Project

1980 Archaeological Data Salvage at Turkey Pen Ruin

In the fall of 1979, looters repeatedly visited the Turkey Pen site and dug at least 72 pits, causing major damage to the archaeological deposits (Blackburn and Williamson 1997:149-152). Powers (1984:1) describes the damage:

Over a period of weeks, working at night, they dug dozens of pits into the dry deposits of the midden, searching for items of commercial value, tossing other midden debris helter-skelter out of the holes, and leaving the site pitted and pockmarked.

In 1980, the Bureau of Land Management issued a contract (YA-553-CTO-50) to the Division of Contract Archaeology (DCA) of the San Juan County Museum Association to salvage archaeological data and to the extent possible repair the damage caused by the looting. Under the specifications of the contract, DCA agreed to: map features and vandal pits, surface collect the site, screen all backdirt, clean and profile strata exposed in the vandal pits, extract pollen and macrobotanical samples from exposed strata, refill the looters' pits, and analyze the samples of artifacts and non-artifactual materials that were collected. The fieldwork was directed by Margaret Powers and was done under federal Antiquities Permit No. 80-UT-186. The report of the work was completed in 1984 (Powers 1984).

The Bureau of Land Management also contracted with Lipe to prepare a brief account of the archaeology of the Turkey Pen site and its importance (Lipe 1979) and to serve as an expert witness at the 1980 trial of the perpetrators of the looting. This was the first attempted prosecution under the then-new Archaeological Resources Protection Act of 1979. The regulations for the Act had not yet been promulgated, leaving the relevance of key provisions and definitions to the Turkey Pen damage somewhat unclear, at least to the jury, which failed to convict under ARPA. However, the perpetrators were convicted of destruction of government property, although this was later overturned on appeal.

The Wetherill-Grand Gulch "Reverse Archaeology" Project

This project, conducted by a team of amateur and professional archaeologists and historians under the leadership of Fred Blackburn, used multiple lines of evidence to reconstruct the history of early archaeological explorations in Grand Gulch and adjacent areas of southeastern Utah, and to locate many of

the archaeological collections made by these expeditions Blackburn and Williamson . In the 1970s, Blackburn had worked as a ranger for the National Park Service at Natural Bridges National Monument and for the Bureau of Land Management in the Grand Gulch-Cedar Mesa area. He became friends with Lipe and other members of the Cedar Mesa Project, and learned from them about the early history of archaeology in the area. Lipe pointed out the potential historical value of inscriptions left at the sites by the early archaeologists (Blackburn and Williamson 1997:4; also see Lipe 1980), and Blackburn began systematically observing and documenting such inscriptions.

The Wetherill-Grand Gulch Project was initiated in 1986 (Johnson 1993; Blackburn and Williamson 1997) and for several years pursued a productive combination of field, archival, and collections research. This resulted in a great increase in knowledge of the history of archaeology in the area, which in turn increased understanding of the contexts from which many of the early collections came (see especially Blackburn and Williamson 1997; Blackburn and Atkins 1993; Phillips 1993; and Hurst and Turner 1993). A symposium held in Blanding, Utah in 1990 resulted in a volume reporting the work of the Wetherill-Grand Gulch Project and related topics (Atkins 1993). Blackburn has continued to do research on the history of the Wetherill family (Blackburn 2006) and early archaeological work in southwestern Colorado and southeastern Utah; he curates an archive of Wetherill family documents and information at the Anasazi Heritage Center at Dolores, Colorado.

The Cedar Mesa Collections Rehabilitation Project: 2000-present

At the time of the Cedar Mesa Project fieldwork, it was anticipated that the collections it produced would be returned to Utah for final curation at the Edge of the Cedars Museum in Blanding, Utah. Because of the large volume of materials and records involved, and of the existing space limitations at the Edge of the Cedars, it was decided by the Utah State Office of the Bureau of Land Management that the Museum of Anthropology at Washington State University should continue to be the repository for these materials. In 1999, the Museum of Anthropology received funds to inventory the Cedar Mesa Project records and collections and to assess their condition (Hemphill et al. 1999).

Subsequently, WSU and the Utah State Office of the BLM entered into a cooperative agreement to rehabilitate the collections and records in order to bring them up to current federal curation standards. Attempts to obtain funding for this work through the federal Save America's Treasures Program were not successful (see proposals by Moe 2000 and Portillo 2002) so the Utah State Office of the BLM has funded the cooperative work out of its cultural resources budget. As a matching contribution, WSU is providing the facilities for the rehabilitation work, as well as the time of Museum of Anthropology Director Mary Collins and Professor Emeritus William Lipe.

The rehabilitation work started in 2000 and is ongoing. Collections and records that were curated at the University of British Columbia for more than 25 years were transferred to WSU by Professor R.G. Matson in 2004. The rehabilitation work includes entering catalogs into a computer database, checking collections against the catalog records, copying paper records onto acid-free paper, labeling and filing all records, duplicating color slides, and compiling an archive of project-related correspondence, reports, and publications. The small number of human remains and possible funerary items included in the collections were identified and inventoried in compliance with NAGPRA. Reports of the rehabilitation project include Collins et al. (2000, 2001, 2003, 2004, 2005, 2006).

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